FM 3-34, *Engineer Operations*: A Blueprint to Forge Our Future

By Lieutenant Colonel Anthony C. Funkhouser

In the last few years, the world has been transformed, with new threats to our nation requiring a broader range of military missions, new technologies for our armed forces, and a new National Security Strategy. The Army took these matters into account as it established new doctrine, beginning with Field Manual (FM) 1, *The Army*, and FM 3-0, *Operations.* This iteration of doctrine was developed more systematically and, for the first time, linked Army doctrine to joint doctrine. The new numbering system also reflects this change. FMs 1 and 3-0 are the capstone manuals and, as such, are at the pinnacle of the doctrine hierarchy from which all other Army manuals descend. Additionally, FM 3-0 is written at the operational level of war, relating doctrinal principles that will enable senior commanders to fight full-spectrum operations and campaigns. It lays out the doctrinal frameworks, tenets, and principles for senior leaders to consider when fighting over extended time and space. As the Regiment's capstone manual, the doctrinal principles within FM 3-34, *Engineer Operations*, were derived from FM 3-0. Like a blueprint, FM 3-34 will provide the foundational principles that will forge the Regiment's future at the operational level of war.

To understand where we will go with FM 3-34, we should understand its history and relationship to FM 3-0 *(*formerly FM 100-5). The origins of engineer operations doctrine can be traced back to the first edition of FM 5-100, *Engineer Operations*, published in 1979. This version of FM 5-100 melded two other engineer manuals, FM 5-135, *Engineer Battalion Armored Mechanized and Infantry Divisions*, and FM 5-136, *Airborne Division Engineer Battalion,* both published in 1961. These two manuals focused solely on the principles and tactics, techniques, and procedures for battalion commanders operating in a division (tactical level). Coming just after the 1976 edition of FM 100-5, *Operations*, this 1979 version of FM 5-100 addressed common themes of divisional engineer operations against a Cold War threat. The manual (again written at the tactical level) explained how the engineer functions of mobility, countermobility, survivability, and topographic and general engineering support the maneuver commander. Since then, FM 5-100 has been revised four more times, three of which were in direct response to revisions of FM 100-5 (see table above).

FM 100-5, *Operations*	FM 5-100, *Engineer Operations*
1968	1961 (FM 5-135/136)
1976	1979
1982	1982
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1986	1988
1993	1996
2001 (FM 3-0)	2003 (FM 3-34)

Publication dates of capstone manuals

The revisions of each of these manuals are indicative of changes to organizations, equipment, and how the Army was to fight. However, the enduring principles of war did not change. It was not until the Army began to think of how to train and participate in military operations other than war that new doctrinal principles began to emerge. The current version of FM 3-0, published in June 2001, addresses participation in the full spectrum of operations (offense, defense, stability, and support) in noncontiguous areas of operations and the impact of a new operational environment. Throughout the process of developing this new doctrine, principles of war endured. The authors of FM 3-0 also established an operational framework, integrating elements of combat power, principles of war, and Army tenets to achieve decisive operations. It is this framework that provides the basis of all discussions in FM 3-0 and, therefore, other manuals in the doctrinal hierarchy.

The U.S. Army Engineer School's Doctrine Development Division has taken this framework into consideration, along with feedback from senior engineer leaders in the field, and has started drafting a new FM 3-34. To maintain integrity with higher-order manuals and to create the parameters from which the manual could be written, this manual integrates the engineer functions, responsibilities, and principles addressed in joint publications and our Army capstone manuals. These parameters give us the latitude to address our advances in how we will fight the Regiment and serve as the foundation for all other engineer manuals.

FM 3-34 provides many firsts for the Corps of Engineers. First, the manual weaves a theme of engineer operations at the operational level of war throughout the entire manual. Second, it describes new threats in the operational environment and the implications to engineers around the Regiment. Third, it expands upon the role of the Regiment. It specifically discusses how the entire Regiment contributes to operational-level

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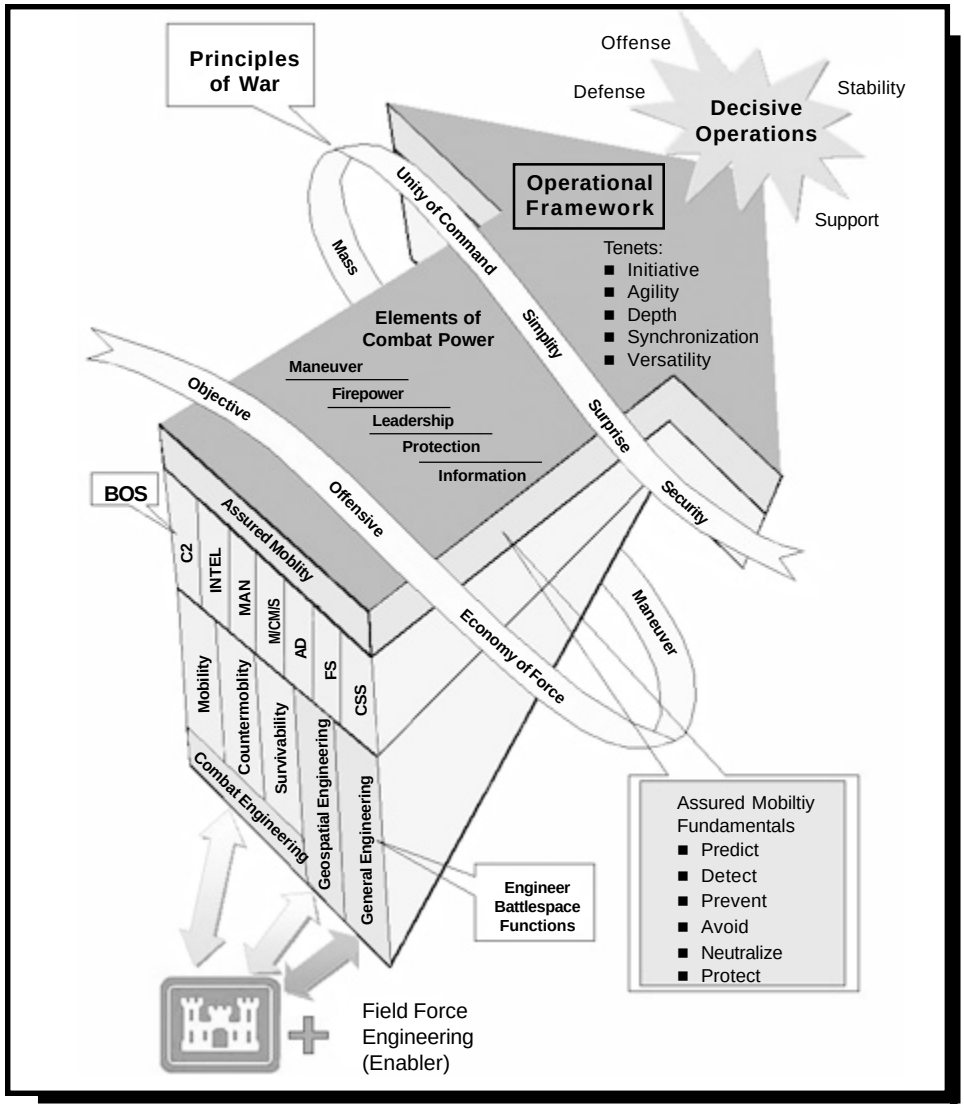

Assured Mobility Within the Operational Framework

commanders and how the Regiment interacts with all of its various engineer organizations to support the Army's senior-level commanders. Toward this end, we propose a regimental mission essential task list (METL) to support the Army's METL. Establishing a common engineer METL is another means to tie the Regiment together. Last, but certainly not least, is the center of gravity for this manual. The figure above, which is excerpted from the manual, takes the operational framework described in FM 3-0 and explains how the engineer functions support this framework, through the assured mobility subframework we recently published.

The manual uses this amalgamation to establish the relationships of the assured mobility imperatives and fundamentals to the elements of combat power within the operational framework. It should facilitate maneuver commanders' understanding of what assured mobility does for them, as it is explained within the context of their operational structures. It also shows how field force engineering enables engineer functions throughout the Regiment and expands our capabilities down to the point of the spear.

In FM 3-34, we try not to regurgitate doctrine from other manuals but rather refer the reader to the source document. Also, we steer away from tactical-level discussions that will be addressed in other manuals. FM 3-34 does not directly address the Objective Force, but by integrating a number of principles and introducing frameworks such as assured mobility and capabilities such as field force engineering, it provides the foundation for future doctrine focused on the Objective Force.

As you can see, FM 3-34 is different than previous editions, and those with a vision for the future of the Regiment will appreciate the contrast. It is critical to the Regiment that we are tightly linked to Army doctrine so we are not overlooked and made irrelevant. Therefore, it is very important that we get feedback from the field and make this an interactive process as we come to closure and publication.

In draft form, FM 3-34 was posted to the Army Knowledge Online (AKO) collaborative Web site (Army KCC Home/ Army Communities/TRADOC/Engineer/Engineer School/

Directorate of Training/Doctrine) for feedback until 21 March 2003. The comments were integrated for a coordinating draft and posted to the AKO Web site on 4 April 2003. This version will be used to discuss the manual and identify areas for modification.

The Engineer School plans to publish and distribute FM 3-34 by the end of FY03. The manual will be the foundation and blueprint for future engineer manuals. In the next year, the Doctrine Division will take the principles in FM 3-34 to revise our next tier (engineer functions) of manuals as follows:

- FM 3-34.1 (FM 90-7 and FM 5-102), *Combined Arms Obstacle Integration*
- FM 3-34.2 (FM 90-13-1 and FM 5-101), *Combined Arms Breaching*
- FM 3-34.112 (FM 5-103), *Survivability*
- FM 3-34.250 (FM 5-104), *General Engineering*
- FM 3-34.230 (FM 5-105), *Geospatial Engineering*
- FM 3-97.13 (FM 90-13), *River Crossing Operations*
- FM 3-34.32 (FM 20-32), *Mine/Countermine Operations*

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Letter To The Editor

Planning Engineer Support for an Urban Attack

I originally wrote "Planning Engineer Support for an Urban Attack" (published in *Engineer*, July 1998, and reprinted in *Engineer*, January-March 2003) to provide options with the technology and doctrine fielded to table of organization and equipment engineer units. Since I left the Joint Readiness Training Center, the Army has developed new doctrine and equipment to address some of the challenges I discussed. We have learned well from our experiences in the Balkans and Afghanistan. Notably, the sensor arrays now in development through the Infantry Center and in testing with the Special Operations Forces community mitigate the need for explosive entry during precision-strike military operations on urbanized terrain (MOUT). Remotely controlled breaching equipment has improved mobility and reduced the need for explosive breaching in many cases. Unmanned aerial vehicles and improved intelligence dissemination systems have greatly improved our situational awareness, reducing the need for "brute force" approaches. Indeed, the entire Army is making great strides in addressing the MOUT challenge.

Given that the world continues to urbanize, we must continue to develop new techniques to meet a wide range of MOUT tactical problems. Lieutenant Colonel Funkhouser and Major Kirkton ("Doctrinal Changes in Urban Operations," *Engineer*, January-March 2003) rightly state that we have an obligation to reduce collateral damage as a way to protect civilians and maintain legitimacy for our operations in the host nation. I would add that the complex three-dimensional battlespace of a large city, such as Seoul or Baghdad, presents a broad range of tactical problems for the maneuver commander—high population density, complex terrain, and dispersed-but-lethal military opponents. The supporting engineer soldiers have a responsibility to prepare a broad range of solutions to these tactical problems, some of which may be quite destructive. For example, explosive mine clearing may be appropriate in engagement areas like urban parks, and explosive-entry techniques may be required to gain access to enemy-held buildings. The Israeli-Palestinean conflict provides rich examples of improvised obstacles supporting small groups of determined opponents and demonstrates that excessive force can have significant unintended consequences. We must balance the risk of collateral damage with mission accomplishment, force protection, and proportionality. Excessive force risks escalation and violates the principles of legitimacy and restraint that are the foundation of successful smaller-scale contingency operations.

In any case, good mobility/survivability support contributes to maintaining initiative and momentum. Detailed mobility/survivability planning and preparation is essential in every environment. It must address the needs of the entire tactical force—from tooth to tail. Resupply and ground casualty evacuation routes, movement corridors for armored support forces, and a variety of assembly areas must be thoroughly planned and resourced. Engineer support to dismounted infantry platoons and companies in urban environments must remain prepared to clear a variety of reinforcing obstacles, including breaching buildings.

This is a superb discussion topic that should rightly take place in the pages of our professional publication.

Major John DeJarnette